

REMARKS

Claims 1-29 were pending prior to the Office action. In the Office action claims 1-29 were rejected and claims 18 and 24 were objected to. In this response, claims 3 and 18-24 are amended. Claims 1-29 are pending.

Drawing Objections

The Office Action states:

5. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Office Action, page 2.

Applicants are submitting replacement sheets with this response. Replace sheets 1 and 2 include the caption "(PRIOR ART)."

Specification Objections

The Office Action states:

6. The disclosure is objected to because of the following informalities:

i. Page 20, line 14, the word "fractruers" is misspelled. The examiner interprets as "fractures".

ii. Page 24, lines 6 and 7, the word "determinines" is misspelled. The examiner interprets as "determines".

Appropriate correction is required.

Office Action, pages 2-3.

Applicants have submitted amendments with this response to address these objections.

Claim Objections

The Office Action states:

7. Applicant is advised that should claim 1 be found allowable, claims 18 and 24 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Office Action, page 3.

Applicants have amended claims 18 and 24. Applicants submit that the amended claims are not substantially duplicative of claim 1.

Claim Rejections Under 35 U.S.C. § 101

The Office Action states:

9. Claim 1-29 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter.

Per independent claim 1, 18, and 24: The Examiner first submits that, in view of the language of the claims, method claim 1, 18, and 24 are abstract and do not appear to recite a tangible result. in this case the result appears to merely be an abstract set of system elements that are not used to achieve the application recited in the preamble of the claim. The examiner submits that in order to establish a practical application, there must be either a physical transformation, or a useful, concrete and tangible result. Data transformation is not the same as a physical transformation. In this instance, it does not appear to be a tangible result. Here, the recited system elements simply result in determination, and are not a physical transformation. The claimed elements in this case, are simply a thought or computation element, and not in themselves a tangible result.

It is not until the transformation applied in a meaningful way that it has real world value and becomes a tangible result.

Office Action, pages 3-4.

Applicants disagree. Applicants do not seek to protect any abstract ideas, only certain implementations of methods for optimizing the number, placement, and size of fractures in a subterranean formation. The Office Action does not claim that such an optimization is not a useful result. Rather, the Office Action focuses on the presence of physical transformation among the claim elements without considering the claim as a whole. That analysis is incorrect. According to Interim Guidelines for Examination of Patent Applications for Subject Matter Eligibility (“Interim Guidelines”):

To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:

- The claimed invention "transforms" an article or physical object to a different state or thing.
- The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Interim Guidelines at 19. Thus, the Interim Guidelines set forth two alternative tests, whereby satisfaction of either test merits a conclusion that the claimed invention is statutory subject matter. However, the Examiner has, in essence, incorrectly stated that a failure to meet the physical transformation test supports a conclusion that the claimed invention does not “otherwise produce[] a useful, concrete and tangible result.” “In determining whether the claim is for a ‘practical application,’ the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is ‘useful, tangible and concrete.’” Interim Guidelines at 20. Each of the claims is drawn to statutory subject matter in that each of the claims is directed to the useful, concrete, and tangible result of detecting errors generated in the digitization of books by a plurality of processes.

Further, the analysis in the Office Action is incorrect in light of prevailing law. The Federal Circuit found the following claim to be statutory under § 101:

A method for use in a telecommunications system in which interexchange calls initiated by each subscriber are automatically routed over the facilities of a particular one of a plurality of interexchange carriers associated with that subscriber, said method comprising the steps of:

generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and

including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers.

AT&T v. Excel Comm. Inc., 173 F.3d 1352, 1354 (Fed. Cir. 1999). Note that the two claim elements are directed to “generating a message record . . .” and “including . . . a primary interexchange carrier (PIC) indicator . . .” Under the Office Action’s reasoning, these two elements are pure manipulations of data, devoid of physical structures that produce a “useful, concrete and tangible” result. Therefore the claim as a whole would not be statutory under the Office Action’s reasoning. The *AT&T* reasoning is equally applicable to Applicant’s claim. Like the situation in *AT&T*, the final result of Applicant’s claimed invention (*i.e.*, optimizing the number, placement, and size of fractures) produces a useful, concrete, tangible result without pre-empting other uses of a mathematical principle. See *AT&T v. Excel Comm. Inc.*, 173 F.3d at 1358. Applicants therefore request that the rejection be withdrawn.

Claim Rejections Under 35 U.S.C. § 102

The Office Action states:

11. Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by M. Y. Sollman, J. L. Hunt, and A. M. Elrabaa, “Fracturing Aspects of Horizontal wells”, herein referred as Sollman, 1990 Society of Petroleum Engineers, pages 966-973.

As per Claim 1:

Sollman discloses a method of optimizing a number, placement and size of fractures in a subterranean formation (page 966, Summary) comprising the steps of: (a) determining one or more geomechanical stresses induced by each fracture based on the dimensions and location of each fracture (page 966, right side column, “stress Magnitude and Orientation” and page 967, left side column, “Determining Magnitude and Orientation of Least Principal stress”); (b) determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures (page 968, right side column, “Determining the Optimum Number of Fractures”); and (c) determining a predicted stress field based on the geomechanical stresses induced by each fracture (page 967, left side column, “Determining Magnitude and Orientation of Least Principal Stress”).

Office Action, pages 4-5.

Applicants disagree. Claim 1 requires, in part, “determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures.” This element is not disclosed in Sollman. Sollman discusses determining an “optimum number of fractures to produce the reservoir.” Sollman, page 969, col. 2. This is not the same as “determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures.” Sollman does not include any disclosure of a geomechanical maximum number of fractures. Furthermore, the Office action does not include any explanation of how Sollman’s optimal number of fractures is an actual or inherent disclosure of ““determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures,” as required by the claim. Claims 18 and 24 include similar limitations and are similarly patentable over Sollman. Each of the remaining claims depends from one of claims 1, 18, or 24 and is therefore patentable over Sollman.

SUMMARY

Applicants contend that the claims are in condition for allowance, which action is requested. Applicants do not believe any fees are necessary with the submitting of this response. Should any fees be required, Applicants request that the fees be debited from deposit account number 02-0383.

Respectfully submitted,

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